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ABSTRACT

To test the hypothesis that common responses will tend to predominate initially with unique or original responses occurring more often later in a sequence of responses, 56 protocols from the Torrance Tests of Creative Thinking were examined. Both a figural and a verbal form were administered following prescribed directions to children in the intermediate grades (4th, 5th and 6th). The subjects included 24 girls and 32 boys attending a private school affiliated with a large teacher-training institution. Most of the subjects were the children of faculty members or graduate students. Lorge-Thorndike Intelligence Test total scores for the group ranged from 97 to 144 with a mean of 122.69. Chi square tests were computed separately for the figural and verbal forms. The result of the chi-square test on the figural form was not significant. The result for the verbal form, however, reached a high level of significance. Further, there were more original responses in the later segments of responses, with a progressive increase of original responses with each successive segment of responses. (Author/DB)

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AN ANALYSIS OF THE TREND OF ORIGINALITY SCORES ON A MEASURE OF CREATIVITY

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AN ANALYSIS OF THE TREND OF ORIGINALITY SCORES

ON A MEASURE OF CREATIVITY

Mednick's (1962) associative interpretation of the creative process was central to the conceptualization of creativity subscribed to by Wallach and Kogan (1965). Individual differences in creativity, Mednick proposed, could be characterized by the highly creative who would respond relatively slowly but steadily produce many responses, including more remote or unusual associations; and the low creative who would respond more rapidly, utilizing common associations, but produce fewer responses. In comparing the production of these two types, Wallach and Kogan felt that the creative would be unduly penalized under time constraints. They concluded, therefore, that creativity could not be appropriately assessed in short time periods. As a result, they constructed instruments to assess creativity which were to be administered without time limits and in a game-like situation. Their analyses indicated that the instruments were modestly intercorrelated and reasonably independent of intelligence measures.

Building on Wallach and Kogan's work, several investigators have utilized their tests of creativity and have reported the patterns of occurrence of original responses. Massad (1969) found that more unique responses occurred in the second half of the list of responses, with one-third of the unique responses appearing in the first half. Ward (1969) was concerned with the viability of Mednick's theory when applied to results obtained through use of the Wallach and Kogan measures. Among

his findings was an increase in uncommonness of response over successive response positions.

Utilizing measures of creativity derived from Guilford's factor analytic studies, Christensen, Guilford and Wilson (1957) examined originality scores over time. Originality was derived from three subcomponents: cleverness, remoteness of association, and uncommonness of association. It was found that remoteness and uncommonness of association increased with time, though cleverness was found to be independent of time. Likewise, Manske and Davis (1968) using Guilford's Unusual Uses Test found significant correlations between order of emission of responses and the level of originality, with more original responses emitted later.

Though initially adaptations of the Guilford Tests, Torrance has through the years evolved a series of creativity measures more global in nature which are administered in the conventional timed situations. Van Mondfrans et al. (1971) investigated the effects of directions and response time on scores from verbal and figural forms of the Torrance Tests of Creative Thinking. In the condition without time limits, a take-home method, it was found that there was a significantly higher performance for the figural form when compared with conditions with time limits. An analysis was not conducted to determine the trend of such scores, i.e., whether they were evenly distributed or concentrated at certain points in the chain of responses. The take-home condition introduces many uncontrolled variables in addition to unlimited time, so that results must be interpreted with caution. No differences were

found for the verbal form.

Due to the widespread use of the Torrance Tests, commercially available in a research edition, the relevance of the Mednick theory is particularly crucial. To test the hypothesis that common responses will tend to predominate initially with unique or original responses occuring more often later in a sequence of responses, 56 protocols from the Torrance Tests of Creative Thinking were examined. Both a figural and a verbal form were administered following prescribed directions to children in the intermediate grades (4th, 5th and 6th). The subjects included 24 girls and 32 boys attending a private school affiliated with a large teacher-training institution. Most of the subjects were the children of faculty members or graduate students. Lorge-Thorndike Intelligence Test total scores for the group ranged from 97 to 144 with a mean of 122.69.

Responses for each subtest were divided into five equal parts maintaining the order of responses. Where responses could not be divided equally into five portions, the remaining responses were systematically rotated among the fifths, resulting in an over-all even distribution of responses among the five portions. If a subject did not have at least five responses for a subtest, his responses were not tallied for that particular subtest. For the figural form, activity one was not included in the analysis since it called for only one rather than multiple products. Likewise, for the verbal form, activity six was eliminated from the analysis due to the infrequency of original responses. Since second level originality responses were rare, first level and second level originality scores were combined for the analysis. The tabulation of

originality scores for the figural and verbal forms are presented in Tables 1 and 2. Chi-square tests were computed separately for the figural and verbal forms.

The result of the chi-square test on the figural form was not significant ($\chi^2=4.39$, df=4, $p<.50$). The result for the verbal form, however, reached a high level of significance ($\chi^2=31.68$, df=4, $p<.001$). Further, as hypothesized, there were more original responses in the later segments of responses, with a progressive increase of original responses with each successive segment of responses (see Table 2).

The significant finding concerning the verbal form of the Torrance Tests is consistent with the findings of Ward (1969) and Manske and Davis (1968) reported above. The subtest from the Torrance Test which shows the most consistent trend is activity five (see Table 2). This activity calls for unusual uses for cardboard boxes and would most closely resemble Guilford's Unusual Uses Tests used by Manske and Davis.

Several factors may account for the lack of a significant finding on the figural form. Since the verbal form was administered first, the subjects may have created a set conducive to original responses, resulting in a more uniform performance on the figural form. It may also be that it is possible to react more quickly in an original manner to a figural stimulus. The Van Mondfrans et al. (1971) finding reported above would not be inconsistent with this possibility as they reported greater production in a take-home condition as compared to timed conditions rather than consistency of responses within a condition.

The present study supports previous findings concerning an increase of original responses in a sequence of responses, in this case on the verbal form of the Torrance Tests. The question of timed tests is still a moot point. Further investigations might compare the relative rank orderings of individuals under timed and untimed conditions. The study leaves open the possibility of differing patterns of original responses between the verbal and figural forms of the Torrance Tests. In addition, future studies are needed in the creativity area along the lines suggested by Treffinger, Renzulli and Feldhusen (1971). In particular, it is necessary to explore the relationship of the underlying constructs implicit in the tests of creativity currently available.

Table 1

Number of Original Responses by Activity and Response Order for Torrance Tests of Creative Thinking, Figural Form B

	Activity 2	Activity 3	Subtotal
1st 20%	68	44	112
2nd 20%	60	50	110
3rd 20%	70	55	125
4th 20%	60	53	113
5th 20%	69	68	137
Subtotal	327	270	597 Total

Table 2

Number of Original Responses by Activity and Response Order for Torrance Tests of Creative Thinking, Verbal Form A

	Act. 1	Act. 2	Act. 3	Act. 4	Act. 5	Act. 7	Subtotal
1st 20%	24	34	45	71	70	12	256
2nd 20%	41	34	49	80	71	12	287
3rd 20%	43	37	60	96	76	11	323
4th 20%	42	42	70	95	85	15	349
5th 20%	51	43	60	111	101	18	384
Subtotal	201	190	284	453	403	68	1,599 Total

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